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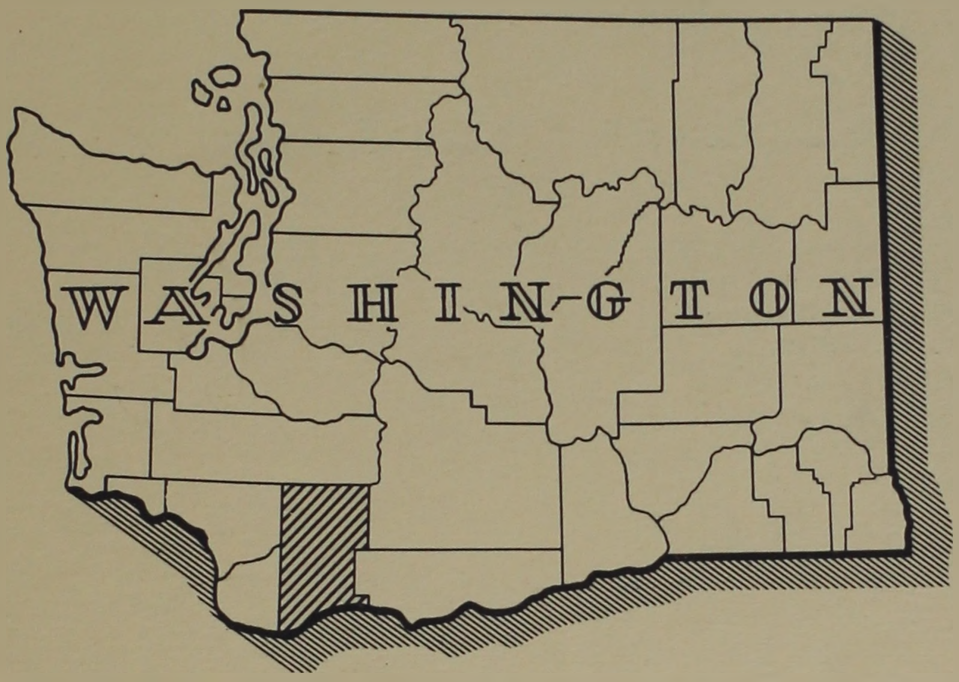
FOREST STATISTICS FOR SKAMANIA COUNTY, WASHINGTON

FOREST SURVEY REPORT NO. 107



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATION
R. W. COWLIN, DIRECTOR

PORTLAND, OREGON JANUARY 1953

PREPARED BY THE DIVISION OF FOREST ECONOMICS

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Field[1/] and Office Work in Skamania County, Washington

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1/ Acknowledgment is made of cooperation from several private and public agencies in mapping parts of this county.

FOREST STATISTICS

FOR

SKAMANIA COUNTY, WASHINGTON

Forest Survey Report No. 107

by

F. L. Moravets

U. S. Department of Agriculture Forest Service
Pacific Northwest Forest and Range Experiment Station

R. W. Cowlin, Director
January 1953

FOREWORD

This publication summarizes in statistical form the results of a reinventory of the forests of Skamania County, Washington, conducted in 1950. This reinventory is a part of the maintenance phase of the Forest Survey, a Nation-wide project of the Forest Service authorized by the McSweeney-McNary Forest Research Act of 1928 and amended June 25, 1949. The purpose of the Forest Survey is to periodically inventory the extent and condition of forest lands and the timber and other products on them, to ascertain rates of forest growth and depletion, to estimate present consumption of timber products and to analyze and make available in reports survey information needed in the formulation of forest policies.

The Forest Survey is conducted in the various forest regions of the Nation by the regional forest experiment stations of the Forest Service. In the Pacific Northwest region of Oregon and Washington it is an activity of the Pacific Northwest Forest and Range Experiment Station at Portland, Oregon.

Under the initial phase of the Forest Survey Skamania County was inventoried during 1930 and 1931. Later the inventory was adjusted to January 1, 1933 and a statistical report, "Forest Statistics for Skamania County, Washington," and a detailed forest type map--scale 1 inch to the mile--were released.

Following the reinventory in 1950, the detailed forest type map of the county has been revised. 1/

1/ A print of the forest type map is available at cost of blueprinting. For information write Director, Pacific Northwest Forest and Range Experiment Station, 423 U. S. Court House, Portland 5, Oregon.

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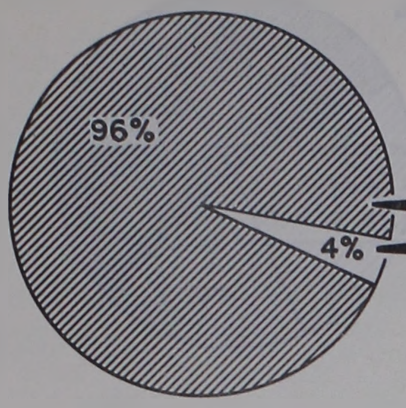
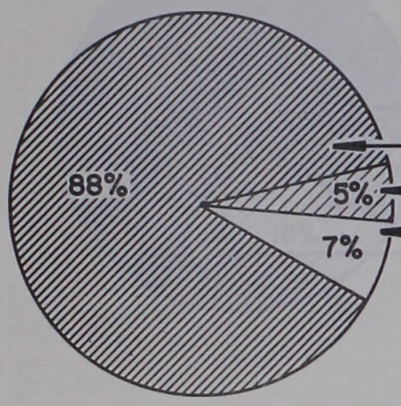
SIGNIFICANT SURVEY FINDINGS

LAND-USE CLASSES



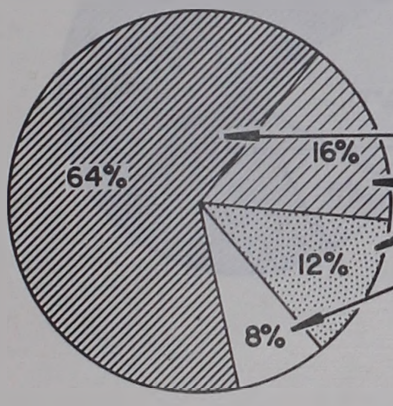
CLASS	THOUSAND ACRES
FOREST LAND	1,036
NONFOREST LAND	42
TOTAL	1,078

FOREST-LAND CLASSES



CLASS	THOUSAND ACRES
COMMERCIAL FOREST	914
RESERVED COMMERCIAL FOREST	49
NONCOMMERCIAL FOREST	73
TOTAL	1,036

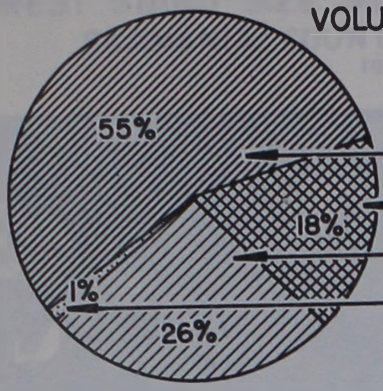
STAND-SIZE CLASSES*



CLASS	THOUSAND ACRES
SAW TIMBER	589
POLE TIMBER	142
SEEDLINGS AND SAPLINGS	114
NONSTOCKED	69
TOTAL	914

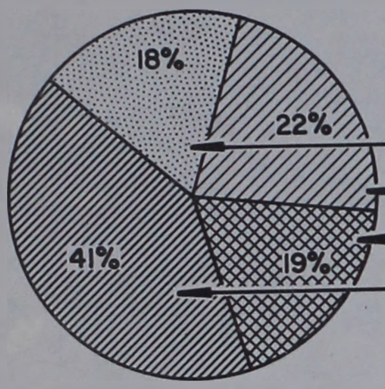
* ON COMMERCIAL FOREST LAND

VOLUME OF LIVE SAW-TIMBER BY SPECIES*



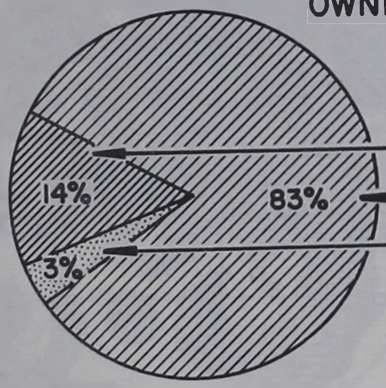
SPECIES GROUP	MILLION BD. FT. SCRIBNER RULE
DOUGLAS-FIR	15,069
WESTERN HEMLOCK	4,785
OTHER CONIFERS	7,221
HARDWOODS	309
TOTAL	27,384

SIZE OF DOUGLAS-FIR TIMBER*



DIAMETER CLASS	MILLION BD. FT. SCRIBNER RULE
11.0"-20.9" D.B.H.	2,722
21.0"-30.9" D.B.H.	3,363
31.0"-40.9" D.B.H.	2,761
41.0" AND LARGER	6,223
TOTAL	15,069

OWNERSHIP OF LIVE SAW-TIMBER VOLUME*

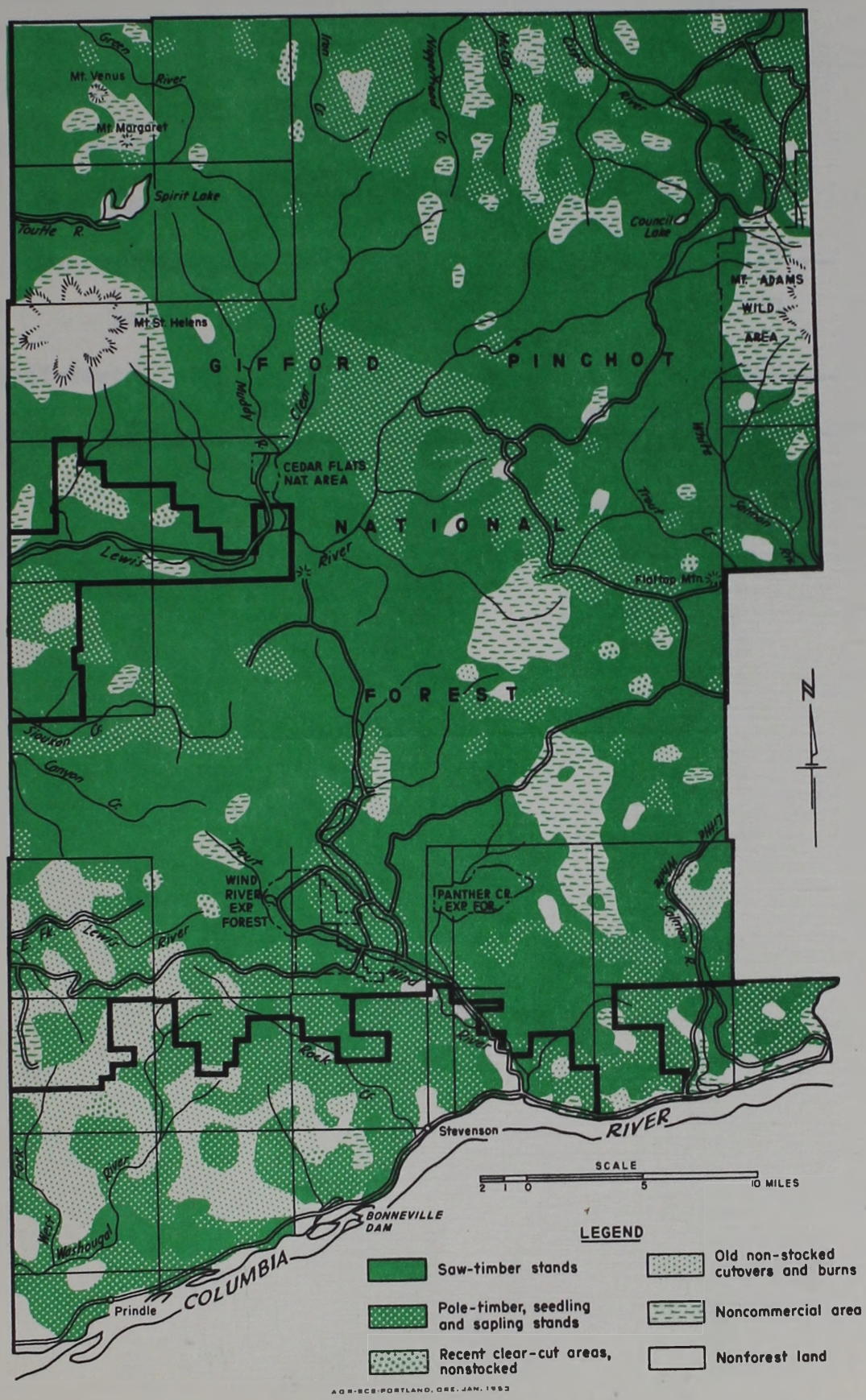


OWNERSHIP	MILLION BD. FT. SCRIBNER RULE
PRIVATE	3,737
FEDERAL	22,673
OTHER PUBLIC	974
TOTAL	27,384

* ON COMMERCIAL FOREST LAND

FIGURE 1

FOREST STAND-SIZE AND CONDITION CLASSES
SKAMANIA COUNTY, WASHINGTON
1950



AGR-SCS-PORTLAND, ORE. JAN. 1953

Table 1.--Land area, by major classes of land, 1950

Class of land	Area
	Acres
Forest:	
Commercial	913,610
Noncommercial:	
Reserved from commercial timber use	49,200
Unproductive for timber use	72,670
Total	1,035,480
Nonforest	42,450
Total, all classes	1,077,930

Table 2.--Commercial forest land area by ownership and stand-size classes, 1950

Ownership class	Total	Saw-timber stands	Pole-timber stands	Seedling and sapling stands	Nonstocked areas
	Acres	Acres	Acres	Acres	Acres
Private	159,210	79,290	33,270	25,130	21,520
State	69,290	19,020	12,250	19,840	18,180
County	4,250	1,050	1,000	1,690	510
Federal:					
National forest	677,810	488,670	93,950	67,000	28,190
Public domain	3,050	1,050	1,030	440	530
Total Federal	680,860	489,720	94,980	67,440	28,720
All ownerships	913,610	589,080	141,500	114,100	68,930

Table 3.--Area of commercial forest land, by major forest types and stand-size class, 1950

Forest type	Total	Saw-timber stands			Pole timber stands	Seedling and sapling stands	Non-stocked areas
		Old growth	Large young growth	Small young growth			
	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Douglas-fir	584,660	164,570	157,400	69,920	102,120	90,650	
Western hemlock	62,540	59,510		990	1,240	800	
Engelmann spruce	160	160					
Western redcedar	1,460	1,380			80		
White pine	36,560	2,320		11,830	16,760	5,650	
Ponderosa pine	8,840	7,600		400	400	440	
Lodgepole pine	7,380			200	5,200	1,980	
True fir-mountain hemlock	134,290	83,560		24,380	14,400	11,950	
White fir	4,320	600		3,680		40	
Hardwoods	4,470			580	1,300	2,590	
Nonstocked areas	68,930						68,930
Total	913,610	319,700	157,400	111,980	141,500	114,100	68,930

Table 4.--Area of commercial and noncommercial forest land and nonforest land by cover type and ownership class, 1950

(Acres)

Survey type symbol	Cover type	Total	Unreserved						Reserved		
			Total	Private	State	County	Federal: Public domain	Federal: National forest	Total	Municipal	National forest
	All lands										
	Forest land	1,035,480	966,480	168,350	70,110	4,360	3,780	719,880	69,000	3,660	65,340
	Nonforest land	42,450	28,470	19,420	410	80	230	8,330	13,980	2,700	11,280
	Total	1,077,930	994,950	187,770	70,520	4,440	4,010	728,210	82,980	6,360	76,620
	Commercial forest land										
D5	Douglas-fir large old-growth saw timber (yellow fir)	182,000	164,570	22,470	4,500	250	90	137,260	17,430		17,430
D4	Douglas-fir small old-growth and large young-growth saw timber (red fir)	157,950	157,400	21,930	7,510	230	780	126,950	550	120	430
D3	Douglas-fir small young-growth saw timber	72,010	69,920	12,100	5,690	570	180	51,380	2,090	200	1,890
D2	Douglas-fir pole timber	102,520	102,120	30,690	11,640	1,000	1,030	57,760	400	120	280
D1	Douglas-fir seedlings and saplings	91,070	90,650	22,820	18,780	1,650	440	46,960	420		420
H4	Western hemlock large saw timber	64,770	59,510	4,970	1,000			53,540	5,260		5,260
H3	Western hemlock small saw timber	1,110	990	470				520	120		120
H2	Western hemlock pole timber	1,240	1,240	400	240			600			
H1	Western hemlock seedlings and saplings	800	800	160	80			560			
S4	Engelmann spruce large saw timber	160	160					160			
C4	Western redcedar large saw timber	1,460	1,380	220				1,160	80		80
C2	Western redcedar pole timber	80	80					80			
W4	White pine large saw timber	2,320	2,320					2,320			
W3	White pine small saw timber	11,830	11,830					11,830			
W2	White pine pole timber	16,760	16,760					16,760			
W1	White pine seedlings and saplings	5,650	5,650					5,650			
P4	Ponderosa pine large saw timber	7,600	7,600					7,600			
P3	Ponderosa pine small saw timber	400	400					400			
P2	Ponderosa pine pole timber	400	400					400			
P1	Ponderosa pine seedlings and saplings	440	440					440			
LP3	Lodgepole pine small saw timber	720	200					200	520		520
LP2	Lodgepole pine pole timber	5,200	5,200					5,200			
LP1	Lodgepole pine seedlings and saplings	1,980	1,980					1,980			
FM4	True fir-mountain hemlock large saw timber	102,780	83,560	15,930	240			67,390	19,220	520	18,700
FM3	True fir-mountain hemlock small saw timber	25,250	24,380	760				23,620	870	80	790
FM2	True fir-mountain hemlock pole timber	15,460	14,400	1,230	260			12,910	1,060	300	760
FM1	True fir-mountain hemlock seedlings and saplings	12,930	11,950	520	640			10,790	980	180	800
WF4	White fir large saw timber	600	600					600			
WF3	White fir small saw timber	3,680	3,680					3,680			
WF1	White fir seedlings and saplings	40	40					40			
HD4	Hardwood large saw timber	80	80	40				40			
HD3	Hardwood small saw timber	500	500	400	80			20			
HD2	Hardwood pole timber	1,300	1,300	950	110			240			
HD1	Hardwood seedlings and saplings	2,790	2,590	1,630	340	40		580	200		200
X	Recent clear-cut area nonstocked	8,020	8,020	3,420	1,380	40	40	2,540			
XO	Old clear-cut area nonstocked	5,970	5,970	5,210	620	140					
F	Area deforested by fire	54,640	54,640	12,890	15,580	330	490	25,350			
WT	Area deforested by wind	300	300					300			
	Total	962,810	913,610	159,210	69,290	4,250	3,050	677,810	49,200	1,520	47,660
	Noncommercial forest land										
NR	Noncommercial rocky	39,940	37,710	6,260	820	110	730	29,790	2,230	540	1,690
SA	Subalpine	32,730	15,160	2,880				12,280	17,570	1,600	15,970
	Total	72,670	52,870	9,140	820	110	730	42,070	19,800	2,140	17,660
	Nonforest land										
A	Agricultural	12,290	12,290	12,230	60						
G	Grass and brush	7,480	7,320	730	90		40	6,460	160		160
O	Open--nonvegetative	22,680	8,860	6,460	260	80	190	1,870	13,820	2,700	11,120
	Total	42,450	28,470	19,420	410	80	230	8,330	13,980	2,700	11,280

Table 5.--Area of commercial forest land by generalized forest type and ownership class, 1950

(Acres)

Generalized forest type		Total	Unreserved						Reserved		
			Total	Private	State	County	Federal: Public domain	Federal: National forest	Total	Municipal	National forest
Conifer saw timber											
Types D3, D4, D5, H3, H4, S4, C4, FM3, FM4, WF3, WF4, W3, W4, P3, P4, and LP3	Uncut	616,370	570,230	74,870	17,400	1,010	1,050	475,900	46,140	920	45,220
	Selectively cut	18,270	18,270	3,980	1,540	40		12,710			
	Total	634,640	588,500	78,850	18,940	1,050	1,050	488,610	46,140	920	45,220
Conifer pole timber											
Types D2, H2, C2, FM2, W2, P2, and LP2	On cutovers	33,910	33,790	25,100	3,480	850	160	4,200	120	120	
	On burns	107,480	106,140	7,220	8,660	150	870	89,240	1,340	300	1,040
	On plantations	270	270					270			
	Total	141,660	140,200	32,320	12,140	1,000	1,030	93,710	1,460	420	1,040
Conifer seedlings and saplings											
Types D1, H1, FM1, WF1, W1, P1, and LP1	On cutovers	23,930	23,930	16,300	3,560	1,450	160	2,460			
	On burns	72,280	70,880	7,200	15,940	200	280	47,260	1,400	180	1,220
	On plantations	16,700	16,700					16,700			
	Total	112,910	111,510	23,500	19,500	1,650	440	66,420	1,400	180	1,220
Recent clear-cut areas, nonstocked											
Type X		8,020	8,020	3,420	1,980	40	40	2,540			
Nonstocked clear-cut and burned-over areas											
Types XO, F, and WT		60,910	60,910	18,100	16,200	470	490	25,650			
Hardwoods											
Types HD1, HD2, HD3 and HD4		4,670	4,470	3,020	530	40		880	200		200
Total		962,810	913,610	159,210	69,290	4,250	3,050	677,810	49,200	1,520	47,680

Table 6.--Net volume of live saw timber[1/] and growing stock[2/] on commercial forest land by ownership class, 1950

Ownership class	Saw timber		Growing stock
	Million board feet, log scale, Scribner rule	Million board feet, International ¼-inch rule	Million cubic feet
Private	3,737	4,026	768
State	922	994	196
County	52	56	11
Federally owned:			
National Forest	22,622	24,374	4,511
Public Domain	51	55	11
Total Federal	22,673	24,429	4,522
All ownerships	27,384	29,505	5,497

1/ Includes live trees 11.0 inches diameter breast height and larger measured in board feet.

2/ Includes live trees 5.0 inches diameter breast height and larger measured in cubic feet.

Table 7.—Net volume of live saw timber and growing stock on commercial forest land by stand-size class, 1950

Stand-size class	Saw timber		Growing stock
	Million board feet, log scale Scribner rule	Million board feet, International ¼-inch rule	Million cubic feet
Saw-timber stands	26,907	28,970	5,228
Pole-timber stands	361	409	229
Seedling and sapling stands	89	96	32
Nonstocked areas	27	30	8
Total	27,384	29,505	5,497

Table 8.--Net volume of live saw timber and growing stock on commercial forest land, by species, 1950

Species	Saw timber		Growing stock
	Million board feet, log scale, Scribner rule	Million board feet, International ¼-inch rule	Million cubic feet
Softwoods:			
Douglas-fir	15,069	16,188	2,806
Western hemlock	4,785	5,168	951
Mountain hemlock	174	188	45
Engelmann spruce	169	183	33
Western redcedar	1,490	1,580	266
Alaska yellow-cedar	1	1	
Western white pine	588	654	148
Ponderosa pine	1	1	1
Lodgepole pine	58	68	18
Pacific silver fir	3,580	3,867	867
Noble fir	718	775	143
Grand fir	239	258	56
Alpine fir	119	129	52
Western larch	84	90	18
Total	27,075	29,150	5,404
Hardwoods:			
Red alder	117	135	54
Bigleaf maple	33	38	15
Black cottonwood	159	182	24
Total	309	355	93
All species	27,384	29,505	5,497

Table 9.--Net volume of Douglas-fir, western white pine, and ponderosa pine live saw timber on commercial forest land by diameter-class group and log rule, 1950

Diameter class and log rule	Total	Douglas-fir	Western white pine	Ponderosa pine
	Million board feet	Million board feet	Million board feet	Million board feet
11.0" to 20.9" d.b.h.				
Scribner rule	3,024	2,722	301	1
International ¼-inch rule	3,507	3,157	349	1
21.0" to 30.9" d.b.h.				
Scribner rule	3,502	3,363	139	
International ¼-inch rule	3,782	3,632	150	
31.0" to 40.9" d.b.h.				
Scribner rule	2,816	2,761	55	
International ¼-inch rule	2,985	2,927	58	
41.0" d.b.h. and larger				
Scribner rule	6,316	6,223	93	
International ¼-inch rule	6,569	6,472	97	
All diameter classes				
Scribner rule	15,658	15,069	588	1
International ¼-inch rule	16,843	16,188	654	1

Table 10.--Net volume of all timber on commercial forest land, by class of material and species group, 1950

Class of material	Total	Softwoods	Hardwoods
	Million cubic feet	Million cubic feet	Million cubic feet
Growing stock:			
Saw-timber trees:			
Sawlog portion	4,632	4,575	57
Upper-stem portion	436	431	5
Total	5,068	5,006	62
Pole-timber trees	429	393	36
Total growing stock	5,497	5,399	98
Other material:			
Sound cull trees	1	1	
Rotten cull trees	71	70	1
Salvable dead trees	126	125	1
Total other material	198	196	2
Total, all timber	5,695	5,595	100

Table 11.--Average annual commodity drain on live saw timber and growing stock on commercial forest land, by species group, for the period 1948-1951 incl.

Species group	Saw timber						Growing stock		
	Timber products	Logging residual	Commodity drain 1/	Timber products	Logging residual	Commodity drain 1/	Timber products	Logging residual	Commodity drain 1/
	Thousand board feet log scale, Scribner rule			Thousand board feet, International $\frac{1}{4}$-inch rule			Thousand cubic feet		
Softwoods	129,541	18,524	148,065	138,818	19,850	158,668	28,765	3,509	32,274
Hardwoods	1,309	187	1,496	1,402	215	1,617	291	36	327
Total	130,850	18,711	149,561	140,220	20,065	160,285	29,056	3,545	32,601

1/ Total of timber-products output and logging residual. Timber-products output is the portion of the inventory volume removed from the woods; logging residual is the portion cut or killed in logging not removed from the woods.

FOREST SURVEY PROCEDURE

The procedure used in the Forest Survey reinventory of Skamania County was materially different from that used in the initial inventory. This change in procedure accounts for some significant differences in both the forest-area and timber-volume statistics obtained. Therefore, a brief description of each of the procedures is desirable.

Initial Inventory

The initial inventory of the county was conducted in 1930 and 1931 by what was known as the "compilation method." In this method existing information on forest types, timber cruises and other pertinent data were collected from various private and public sources. These data were checked in the field for reliability, and if found usable were then adjusted to the specifications and standards of Forest Survey. In this county, however, existing forest-type maps and timber cruises covered only a very small portion of the forested area. The remainder of the county had to be covered by intensive field reconnaissance. This consisted of classifying and mapping areas that were uniform as to type conditions and estimating the average volume per acre for each of the areas of merchantable timber type. Type boundaries were determined by traversing roads, trails, and along ridges, by using high points for lookouts, and by running random strips; they were delineated directly to township base maps, scale 1 inch equals 1 mile. For each area of merchantable timber type estimates of average net volume per acre, by species, were made ocularly and then checked frequently by use of data taken on a number of well-distributed sample plots. These ocular estimates, together with what cruises had been collected, provided in-place volume figures for all parts of the county.

The field township type maps were superimposed, in the office, over ownership-status plats and dot counted to obtain forest-type-area statistics by ownership class. Type delineations on the township maps were traced on a base map of the county to form a county forest type map.

Reinventory

In the reinventory made in 1950, complete revision of the forest type map was obtained through interpretation, classification and mapping on aerial photos that covered all of the commercial forest land and all but a few thousand acres of reserved commercial and noncommercial forest land in the Mount Adams Wild Area. The small area for which photos were not available was covered by ground reconnaissance. In the mapping on aerial photos, types of doubtful classification were checked in the field as was the species composition of stands. The use

of aerial photos in mapping resulted in type delineations of much greater accuracy and detail than were possible through the ground reconnaissance employed in the initial inventory. In the preparation of a revised type map, the delineations on the aerial photos were transferred to a 1-inch county base map through use of a photo projector. The new type map was then superimposed over a current ownership-status map of complete county coverage and a dot count made of forest type areas by ownership class.

Volume estimates each of live saw timber, growing stock, and salvable dead material were calculated by applying average-per-acre volumes to the appropriate forest type acreages. The per-acre volumes for saw-timber and pole-timber stands were obtained through a sampling procedure in which the stands were measured on randomly selected plots. Intensity of the sampling was so designed as to produce a total estimate of volume in the county of a specified sampling accuracy set by Forest Survey. In the random selection of samples each individual saw-timber or pole-timber stand in the county had an equal chance of being selected. A sample consisted of a cluster of three one-fifth-acre circular plots spaced at regular 6-chain intervals. A total of 274 plot clusters, or 822 one-fifth-acre plots, was taken in saw-timber and pole-timber stands.

Average-per-acre volumes of scattered saw-timber and pole-timber trees in seedling and sapling stands and on nonstocked areas were obtained through an aerial-photo-plot sampling procedure. A total of 475 one-acre photo plots was taken in a modified systematic-random pattern. By photo interpretation, estimates were made of average number of trees per acre of both saw-timber and pole-timber size, average crown diameter, and total tree height. Gross volume of the average tree, obtained from photo-volume tables, was adjusted upon basis of an empirical estimate of defect in order to obtain net volume.

SAMPLING ACCURACY

Forest Area

In the reinventory, in-place mapping of the forests and their classification by forest type, stand-size class, or condition class, were on the basis of 100-percent coverage. Therefore no sampling error was involved. Errors due to techniques or judgment were possible but difficult to evaluate.

Timber Volume

For the estimates of timber volume, which were derived from a sampling survey, the chances are 2 out of 3 that the estimated total saw-timber volume does not vary, in either direction, from the true volume more than 3.6 percent; the estimated growing-stock volume does not vary more than 2.8 percent.

COMPARISON OF INVENTORIES

It is possible to compare directly some of the statistics from the reinventory in 1950 with those from the initial inventory in 1931. Other statistics are not subject to direct comparison due to differences between inventories in Forest Survey specifications and standards of utilization.

Forest Land

Statistics on forest-land areas obtained in the two inventories are shown in tabular form below on a comparable basis.

Changes in Forest Land by Stand-Size and Condition Classes Between Inventories

Inventory	Total forest land	Commercial forest land (Unreserved and reserved)					Noncommercial forest land
		Total	Saw timber	Pole timber	Seedlings and saplings	Nonstocked areas	
	Thousands of acres						
1931	1,032	955	567	60	191	137	77
1950	1,035	963	635	143	116	69	72

The small difference in forest-land area between inventories--3,000 acres greater in 1950--is not due to a physical change in the forest resource, but to a difference in mapping procedures. The use of aerial photos in 1950 permitted much more detailed mapping than was possible through ground reconnaissance in 1931. This greater mapping facility, together with a difference in interpretation in classification, also accounts for the increase of 8,000 acres in commercial forest land in the latter inventory; some of the timber classed as subalpine in 1931 was considered to be now of commercial character.

Comparison of the respective areas of the four stand-size and condition classes of commercial forest land--saw timber, pole timber, seedlings and saplings, and nonstocked--reveals a quite favorable trend in the character of the county's forests during the 19 years between inventories. Of particular interest are the increases in both the saw-timber and pole-timber stands. The 68,000-acre increase in saw timber was partly due to a difference in classification of marginal stands on the higher slopes and ridges--classed as noncommercial in 1931--but was chiefly due to young-growth stands growing into the class from pole timber. Reduction in saw-timber acreage resulting from timber cutting was relatively small; on the basis of reported timber cut a total of approximately 22,000 acres was clear-cut during the interval. In the pole-timber class it appears that stands on all of the

60,000 acres shown in 1931 moved into the saw-timber class. In turn, stands on 143,000 acres moved up to pole timber from the seedling and sapling class. Of the 116,000 acres of seedlings and saplings in 1950, 76 percent was restocked old burns, a large part of which was in the Yacolt Burn, in the southwest portion of the county, the initial burn of which was in 1902, and 24 percent was restocked old and recent cut-over lands. Unfortunately the stocking of many of the young stands is of low density; 17 percent of the total area of these stands rated well stocked, 49 percent medium stocked, and 34 percent poorly stocked.

Timber Volume

The total volume of saw timber obtained in the 1950 inventory cannot be compared directly with that obtained in 1931. One reason is that the minimum diameter for saw timber which was 15 inches in 1931 was lowered to 11 inches in 1950. A second reason is that during the 19-year interval there had been a very significant intensification of timber utilization on logging operations, resulting in a greater portion of the gross stand volume being removed as timber products. In 1950 this more complete utilization was accounted for through the use of volume tables that gave values from 10 to 20 percent greater for a tree of given size than did the tables used in the earlier inventory. And still a third reason is the inclusion in the 1950 inventory of the volume in scattered saw-timber trees which were in the overstory of pole, seedling, and sapling stands, and including some on cut-over or burned-over areas classed as nonstocked. This volume was not included in the 1931 inventory.

Volumes each of saw timber and growing stock obtained in the two inventories are shown in the following tabulation. In this summary the 1950 saw-timber volume has been adjusted to include only the volume in trees 15 inches d.b.h. and larger, thus putting it on the same minimum specification as used in the 1931 volume. However, the two sets of figures have not been adjusted for differences in volume tables used.

Changes in Timber Volume Between Inventories

Inventory	Volume on commercial forest land (unreserved and reserved) of--	
	Saw timber	Growing stock
	Million board feet, log scale, Scribner rule	Million cubic feet
1931	17,024	4,650
1950	27,105	5,497

Part of the 59-percent increase in volume of saw timber during the interval can be attributed to growth. As brought out above, part can also be attributed to the difference in volume tables, to the inclusion of overstory volume not previously included, and to the reclassification, as saw timber, of some stands on the upper slopes classed as noncommercial in 1931. The 60,000 acres of pole-timber stands that moved into the saw-timber class would add substantially to the board-foot saw-timber volume.

Comparison of cubic-foot volume of growing stock, which includes both saw-timber and pole-timber trees is more feasible because of only small differences in specifications and standards of utilization between inventories. This volume in 1950 was 18 percent greater than in 1931.

DEFINITION OF TERMS USED

Land Area

Total Land

Includes dry land and unmeandered water surface.

Forest Land

Includes (a) land which is at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; and (b) land from which the trees described in "(a)" have been removed to less than 10 percent stocking and which has not been developed for other use. Minimum area of forest land recognized in reinventory of the county was 40 acres.

Nonforest Land

Land that does not qualify as forest land. Minimum area recognized in the reinventory of the county was 40 acres.

Forest Land Classes

Commercial Forest Land

Forest land which is producing, or is physically capable of producing, usable crops of wood, economically available now or prospectively, and not withdrawn from timber utilization.

Reserved from Commercial Timber Use

Forest land withdrawn from timber utilization through statute, ordinance, or administrative order, but which otherwise qualifies as commercial forest land.

Noncommercial Forest Land

Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land and (b) incapable of yielding usable wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Unproductive for Timber Use

Forest land incapable of yielding usable wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Forest Types

Forest Type

A forest stand characterized by the predominance of certain key species--in terms of cubic volume for saw-timber and pole-timber stands, and in number of trees for seedling and sapling stands--or a forest condition such as nonstocked cut-over or burned-over land. The generalized forest types listed in table 3 are of the following composition:

Douglas-fir. Stands comprised of 50 percent or more of Douglas-fir by cubic volume or number of trees.

Western hemlock. Stands comprised of 50 percent or more of western hemlock by cubic volume or number of trees.

Engelmann spruce. Stands comprised of 50 percent or more of Engelmann spruce by cubic volume or number of trees.

Western redcedar. Stands comprised of 40 percent or more of western redcedar by cubic volume or number of trees.

White pine. Stands comprised of 20 percent or more of western white pine by cubic volume or number of trees.

Ponderosa pine. Stands comprised of 20 percent or more of ponderosa pine by cubic volume or number of trees.

Lodgepole pine. Stands comprised of 50 percent or more of lodgepole pine by cubic volume or number of trees.

True firs-mountain hemlock. Stands in which either noble fir, Pacific silver fir, alpine fir, or mountain hemlock or any combination

of these species, comprise 50 percent or more of the cubic volume or number of trees.

White fir. Stands comprised of 50 percent or more of grand fir by cubic volume or number of trees.

Hardwoods. Stands comprised of 50 percent or more of one of the merchantable hardwood species.

Nonstocked area. Cut-over or burned-over area on which the restocking, if any, is less than 10 percent density and which does not support a residual stand meeting minimum saw-timber requirements.

Tree Classes

Saw-Timber Tree

Softwood or hardwood tree 11.0 inches d.b.h. or larger containing at least one 16-foot log to a variable top diameter inside bark approximating 40 percent of diameter breast height, but never less than 8 inches, and in which one-third or more of the gross board-foot volume is free from rot and defect.

Pole-Timber Tree

Softwood or hardwood tree 5.0 to 10.9 inches d.b.h. in which one-third or more of the gross cubic-foot volume is free from rot and defect.

Cull Tree

Live tree of saw-timber or pole-timber size that is unmerchantable (now or prospectively) because of defect or rot.

Stand-Size Classes

Saw-Timber Stand

Stand of saw-timber trees having a minimum net volume per acre as follows: 5,000 board feet, log scale, Scribner rule, in any conifer species except the pines; 2,000 board feet in any of the pines, 1,000 board feet in hardwoods.

Old-growth saw-timber stand. Stand in which the majority of the cubic-foot volume is in trees more than about 180 years of age and larger than 21.0 inches d.b.h.

Large old-growth saw-timber stand. Stand in which the majority of the cubic-foot volume is in trees more than 41.0 inches d.b.h.

Small old-growth saw-timber stand. Stand in which the majority of the cubic-foot volume is in trees from 21.0 inches to 40.9 inches d.b.h.

Large young-growth saw-timber stand. Stand in which the majority of the cubic-foot volume is in trees under about 180 years of age and from 21.0 inches to 40.9 inches d.b.h.

Small young-growth saw-timber stand. Stand in which the majority of the cubic-foot volume is in trees under 180 years of age and from 11.0 to 20.9 inches d.b.h.

Pole-Timber Stand

Stand failing to meet saw-timber-stand specifications but of at least 10-percent stocking of trees 5.0 inches d.b.h. and larger, with at least one-half the minimum stocking in pole-timber trees (5.0 inches to 10.9 inches d.b.h.).

Seedling and Sapling Stand

Stand not qualifying as either saw-timber or pole-timber stand but having at least 10-percent stocking of trees and with at least one-half the minimum stocking in seedlings and saplings (0 inch to 4.9 inches d.b.h.).

Timber Volume

Live Saw-Timber Volume

Net volume in board feet of live saw-timber trees:

Scribner rule. The common board-foot rule used in determining log-scale volume of saw timber in this region. This rule under-estimates, particularly in case of timber of the smaller diameters, the volume of lumber that could be produced from the timber.

International ¼-inch rule. The standard board-foot rule adopted by the Forest Service in the presentation of Forest Survey volume statistics. Volumes in this rule approximate lumber tally.

Growing Stock

Net volume in cubic feet of live saw-timber trees and live pole-timber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

Salvable Dead

Dead trees, standing or down, in which at least one-third of the gross volume is free from rot or defect and in which sound volume totals at least 30 board feet.

Saw-Timber Volume

Net volume in board feet of live and salvable dead saw-timber trees to a merchantable top.

All-Timber Volume

Net volume in cubic feet of live and salvable dead saw-timber trees and pole-timber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top inside bark.

Commercial Tree Species

Tree species considered in determining stocking and growing stock. Includes species presently or prospectively usable for commercial timber products.

Commercial tree species in Skamania County include:

Softwoods:

Douglas-fir (Pseudotsuga taxifolia)
Western hemlock (Tsuga heterophylla)
Mountain hemlock (Tsuga mertensiana)
Engelmann spruce (Picea engelmanni)
Western redcedar (Thuja plicata)
Alaska-cedar (Chamaecyparis nootkatensis)
Western white pine (Pinus monticola)
Ponderosa pine (Pinus ponderosa)
Lodgepole pine (Pinus contorta)
Pacific silver fir (Abies amabilis)
Noble fir (Abies procera)
Grand fir (Abies grandis)
Alpine fir (Abies lasiocarpa)
Western larch (Larix occidentalis)

Hardwoods:

Red alder (Alnus rubra)
Bigleaf maple (Acer macrophyllum)
Black cottonwood (Populus trichocarpa)

Commodity Drain

Commodity Drain on Live Saw Timber

Board-foot volume of live saw-timber trees removed from commercial forest land during a specified year as timber products and that left as logging residue.

Timber products output. The live saw-timber volume entering into timber products during a specified year.

Logging residue. The live saw-timber volume that is cut or killed in logging during a specified year but is not removed from the forest as timber products.

Commodity Drain on Growing Stock

The cubic-foot volume of live saw-timber and pole-timber trees removed from commercial forest land during a specified year as timber products and left as logging residue.

Timber products output. The growing-stock volume entering into timber products during a specified year.

Logging residue. The volume of growing stock that is cut or killed in logging during a specified year but is not removed as timber products.